NOAA REPORT

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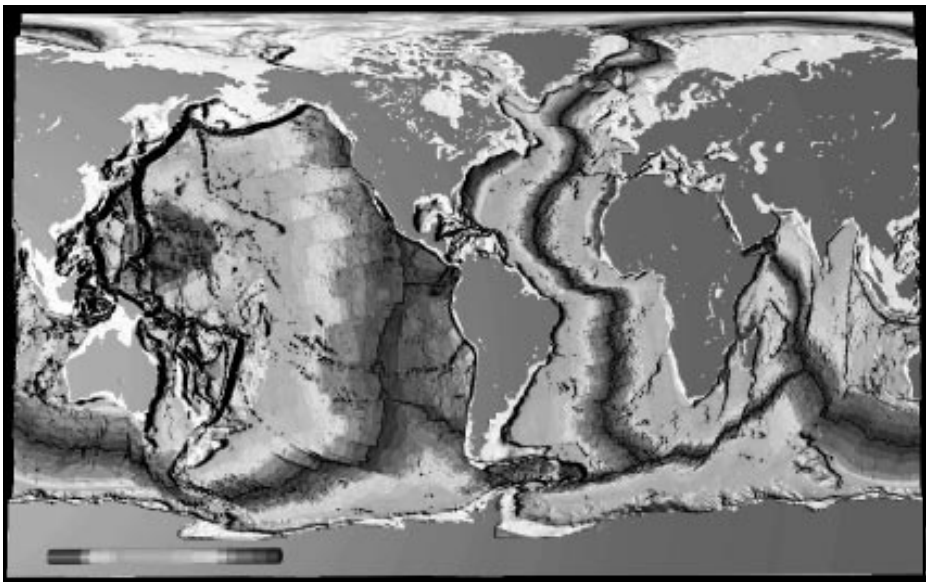
United States Gains New Fishing Opportunities: The United States was successful in its initial meeting as a member of the Northwest Atlantic Fisheries Organization (NAFO). Several U.S.-sponsored initiatives and hard-fought U.S. fish allocations highlighted the U.S. involvement in NAFO's recent meeting in St. Petersburg, Russia.

"One of the goals for the U.S. at this meeting was to increase conservation and restoration of NAFO-regulated stocks through our participation on the NAFO Fisheries Commission and Scientific Council," said Will Martin, U.S. Federal commissioner to NAFO and director of NOAA's Office of International Affairs. "To meet this goal, an exceptionally strong team of U.S. scientists will serve on the council as part of the United States increased commitment to the organization."

The U.S. delegation also led efforts to begin implementing a precautionary approach to fisheries management, much like the approach the U.S. has taken in New England groundfish fisheries, and to allow outside observers access to NAFO meetings and studies. A working group was established to further discuss observer access, with the United States taking a leadership role to pursue this matter prior to next year's meeting.

News Briefs

New Poster Shows Age Of Ocean Floor Crust



A new full-color NOAA poster *(above),* from NESDIS's National Geophysical Data Center, shows the age of the crust of the ocean floor in startling detail. *(See story and full picture, page 6.)*

Federal Campaign Honors Brown: Kantor

Commerce Secretary Mickey Kantor kicked off this year's Combined Federal Campaign last month by introducing its new slogan: "Help Hope Take Shape."

Last year's government-wide charity drive showed an average Commerce gift of $200, with 57 percent of Commerce employees participating, well above the Federal norm. But the number of Commerce employees contributing to the Campaign has decreased since 1993.

"We are all, of course, busy people…, but we cannot forget our obligation to the community around us," said Kantor. Kantor also related the goals of the Campaign to the mission Secretary Ron Brown and 11 Commerce employees were on in Croatia when they lost their lives in a plane crash. "Just as they died on a courageous mission to breathe life into a war-torn region, let's honor their memory by doing our part to save lives and revitalize communities…to eliminate hardship and despair through the CFC program."

All Commerce employees will get more information about the Campaign from local coordinators. The effort is scheduled to run through the end of November.

Task Force Formed

Year 2000 May Bring Headaches for NOAA Computer Systems

Purists may rightly believe that the Year 2000 doesn't usher in the 21st Century—but it may bring with it a massive headache for all users of computers and computer systems around the world, NOAA included.

Most computer software stores the year as a two-digit number, with 96 signaling 1996, 65 referring to 1965, and so on. But when 99 turns to 00, many computer systems may interpret that not as 2000, but as 1900, fouling up records for all facets of corporate America, and the government as well. Experts have predicted that without fixing the underlying computer instructions to make computer hardware and software recognize the turnover of the year, we may see a January 1, 2000 with failed traffic lights, mammoth telephone snafus and, if you're lucky, 99 extra years of bank interest. Fixes have been estimated in the billions of dollars across the economy.

While some Federal agencies with massive computer databases, such as the Social Security Administration, have been working on a fix for the Year 2000 problem for some time, other agencies, such as NOAA, which does not have the enormous databases of the FBI or Social Security, have just begun to search for a solution.

"We could see a whole range of situations if the problem isn't corrected," said Jordan Matejceck, team leader of the NOAA Year 2000 Task Force. "Some systems would not be affected, while for others, it would be catastrophic. Systems that are on all the time or actively use the year-date data are probably the most vulnerable, including systems you might not think of, such as building management, security and even elevators."

While all computers assign dates to files, and some software uses year-date information for calculations, whether a totally accurate date is required is one of the key factors in predicting if there might be a problem, Matejceck said.

"For instance, if you use your home computer to play games, there's probably nothing to be worried about," he said. "But if you use it for legal or financial documents, where a date is automatically entered in a file, that may present a problem."

A recent presentation of Matejceck's task force, organized in June at the request of NOAA Deputy Under Secretary Diana Josephson, has come up with a number of recommendations which are currently being considered:

- **Assess NOAA's vulnerability.** What happens to NOAA if no changes are made? Will any major functions stop at midnight, January 1, 2000? Should the changes be made from a central point of control, or should the individual line and staff offices make the corrections?
- **Require all new software and hardware purchased to be able to recognize the Year 2000.** A major question is whether off-the-shelf computer software is Year 2000 compliant.
- **Make all NOAA staff aware of the problem.** The sooner a problem application is discovered, the sooner a decision whether to fix it or scrap it can be made.

While Matejceck said it was too early to give accurate figures on what any changes to or replacements of hardware and software may cost NOAA to make all the agency's computer systems Year 2000 compliant, some estimates have been put as high as $184 million through fiscal year 1999.

(For more information on the Year 2000 problem facing much of the world, see the Year 2000 Home Page at http://www.year2000.com, a site administered by Peter de Jager, one of the leaders in facing this dilemma. For a Federal government view, see the Year 2000 Information Directory put up by the General Services Administration, http://www.itpolicy.gsa.gov/library/yr2000/y201toc1.htm.)

—JS

Experts Convene to Address Red Tides

A panel of nationally recognized scientific experts, sponsored by NOAA's Coastal Ocean Program and the National Fish and Wildlife Foundation, convened late last month in Seattle to address the human health issues related to the harmful algal blooms popularly known as red tides.

Harmful algal blooms (HABs) hit the U.S. every year, resulting in the loss of millions of dollars from the closure or loss of commercial and recreational fisheries. Unsightly and unhealthy water created by HABs impacts local tourism and real estate markets. The expert assembly will work to develop strategies to cope with the problems caused by HABs. An additional assembly will take place in Florida in mid-November.

International Meteorologists Learn Hurricane Forecasting Techniques

Nearly 80 devastating tropical cyclones develop over the oceans each year, affecting hundreds of countries around the world. The best way to reduce the loss of lives and lessen property damage associated with these storms is through improved forecasts and warnings, increased disaster preparedness and effective communication with the public.

This was the basis of an intense training course at Florida International University, Florida State University and NOAA's Tropical Prediction Center/National Hurricane Center for 22 international forecasters. Throughout the 10-week program, the visiting meteorologists learned about the latest information and techniques that can strengthen the warning and hazard mitigation systems in tropical countries.

22 meteorological forecasters from around the world attended the 10-week WMO program at NOAA's National Hurricane Center and other sites in Miami.

The meteorologists had hands-on experience at predicting the track and intensity of hurricanes with the aid of the experts at the National Hurricane Center. They also reviewed global models, tropical waves, tropical analysis, satellite-observed features, hurricane models, best track determination, storm surge, and strike probabilities.

The session at Florida International University stressed the importance of communication and planning between the weather services and the emergency management community. The attendees learned that they must communicate effectively with the community, local, state and federal governments to ensure the destructive power of hurricanes is well known.

Florida State University wrapped up the last two weeks of the course with media training sessions. Attendees used the television studio to practice broadcast meteorology to improve their television communication skills. While many had previous television experience, the training enhanced their skills in presenting simple and accurate forecasts to the public.

The course, part of the World Meteorological Organization's Tropical Cyclone program, left indelible thoughts in the minds of the attendees of the need to improve warnings, participate in disaster preparedness plans, and communicate effectively with the public. The results of their increased efforts will reduce the loss of lives and perhaps lessen property damage.

—Michael Vega

Rodenhuis to Head Aviation Weather Cntr.

The National Weather Service has named David R. Rodenhuis as the director of NOAA's new Aviation Weather Center in Kansas City, Mo.

The Aviation Weather Center (AWC), the NWS focal point for aviation services, provides critical weather support to the aviation community. The Center, a component of the National Centers for Environmental Prediction (NCEP), issues analyses and forecasts of hazardous weather and warnings of thunderstorms, turbulence, icing, low clouds and reduced visibility, which affect domestic and international aviation.

As the first director of the center Rodenhuis is charged with improving services to the commercial aviation industry and the general aviation

continued on page 8

Focus On...

Reaching Out to Young Scholars

Dr. Donna Turgeon held up the hard-shelled critter by its familiar smooth, short snout for all to see. "This is a quahog," said Dr. Turgeon. The sign language interpreter standing beside Dr. Turgeon carefully spelled *Q U A H O G* for the 18 students.

Most of the students are deaf—the rest are hearing impaired, and for one month this past summer, they had come to the Marine Science Consortium's Wallops Marine Science Center on Virginia's bucolic Eastern Shore to learn about coastal ecology.

Through the interpreter, Dr. Turgeon, Supervisory Ecologist for the National Ocean Service, told the students about molluscan biology, beach ecology, career opportunities in NOAA and her work at the Office of Ocean Resource Conservation and Assessment (ORCA).

This was Dr. Turgeon's second consecutive year as a guest speaker for the National Science Foundation (NSF) Young Scholars Program, and she enjoyed every minute of it. "It's always exciting to talk to students who desire a career in science. It's exceptionally uplifting when they must overcome a particular challenge to do it," said Dr. Turgeon.

The students were chosen because of their excellent academic achievements and interest in science. They traveled from as far away as Nevada, Arizona, and Florida. "Stimulating the interest of these students in science as a career is especially important because deaf students and scientists are clearly under-represented in our colleges, universities, and scientific work force," said Dr. Joseph Marshal, professor of biology at West Virginia University and Director of the NSF sponsored program.

With the Atlantic Ocean and the sandy beaches of Chincoteague, Virginia as a backdrop, the students conducted field and laboratory work, and learned from involved professionals such as Dr. Turgeon. With the help of sign language interpreters, Dr. Turgeon told the students about molluscan anatomy, biology, and systematics. As a demonstration of one aspect of shell morphology, Dr. Turgeon steamed 100 quahogs, hard-shell clams, and served them with melted butter to the students. The student's reactions ran the gamut from "delicious" to "yuck."

"It's always exciting to talk to students who desire a career in science. It's exceptionally uplifting when they must overcome a particular challenge to do it," said Dr. Turgeon.

A VISIT FROM BERTHA

Unexpectedly, the violent forces of nature provided Dr. Turgeon with an opportunity to introduce her students to barrier island ecology and oceanic geology. Several days before

Dr. Donna Turgeon (right) answers questions about careers in NOAA with the help of sign language interpreter Melinda Pitts, a teacher at New York's Lexington School for the Deaf.

Hurricane Bertha was predicted to slam Chincoteague, Dr. Turgeon and the students profiled the shoreline. Dr. Turgeon selected two potential strike zones—a northern beach face with well-developed dunes and a beach section with no dunes for comparison.

Within 12 hours, Bertha had changed course and spared Chincoteague its full wrath. While activities at the Marine Science Center returned to normal, all was not well on the beach. When the students returned to chart possible beach changes, they found the ocean had, before retreating, completely cut through the southern section, deposited tons of sand on an access road, and created a narrow channel to Tom's Cove. The northern dune area was mostly unchanged.

This year's program had challenges other than Hurricane Bertha. Funding was sufficient for only 15 students. The National Ocean Service, along with the Department of Interior's Minerals Management Service, provided additional funding to cover room and board, tuition, and supplies for an additional three past students who were invited back to serve as mentors for the new students.

Two of the three agency-sponsored students, Tiffanee Basse of Brookfield, Ohio, and Ryan Stern from Brooklyn Park, Minn., have been designated "National Ocean Service Young Scholars" for 1996.

"NSF's Young Scholars Program is an excellent opportunity for students, and it is fully endorsed by NOAA. I hope to be invited back again next year," said Dr. Turgeon. "I just love being in the field with such eager-to-learn, enthusiastic young people."

Using stadia poles, a level taut line, a little assistance from Dr. Turgeon and Hurricane Bertha, and computers back in the laboratory, high school students learn how and why scientists profile the beach face from the dunes to the water line to predict erosion.

Both are incoming seniors at Gallaudet University. Dr. Stanley Wilson, NOS Assistant Administrator, took the opportunity to invite Tiffanee and Ryan to work part-time with Dr. Turgeon and others in ORCA. Tiffanee began her internship this September. Ryan plans to join NOS after the fall semester.

"NSF's Young Scholars Program is an excellent opportunity for students, and it is fully endorsed by NOAA. I hope to be invited back again next year," said Dr. Turgeon. "I just love being in the field with such eager-to-learn, enthusiastic young people."

—Bill Zahner

New Poster Depicts Ages of Ocean's Floor

A new NOAA full-color poster that depicts the ages of the ocean floor is the first to clearly show the relation between crustal age of the ocean basin floors and ocean floor relief.

A color image showing crustal ages as colored bands is painted over shaded relief maps and globes.

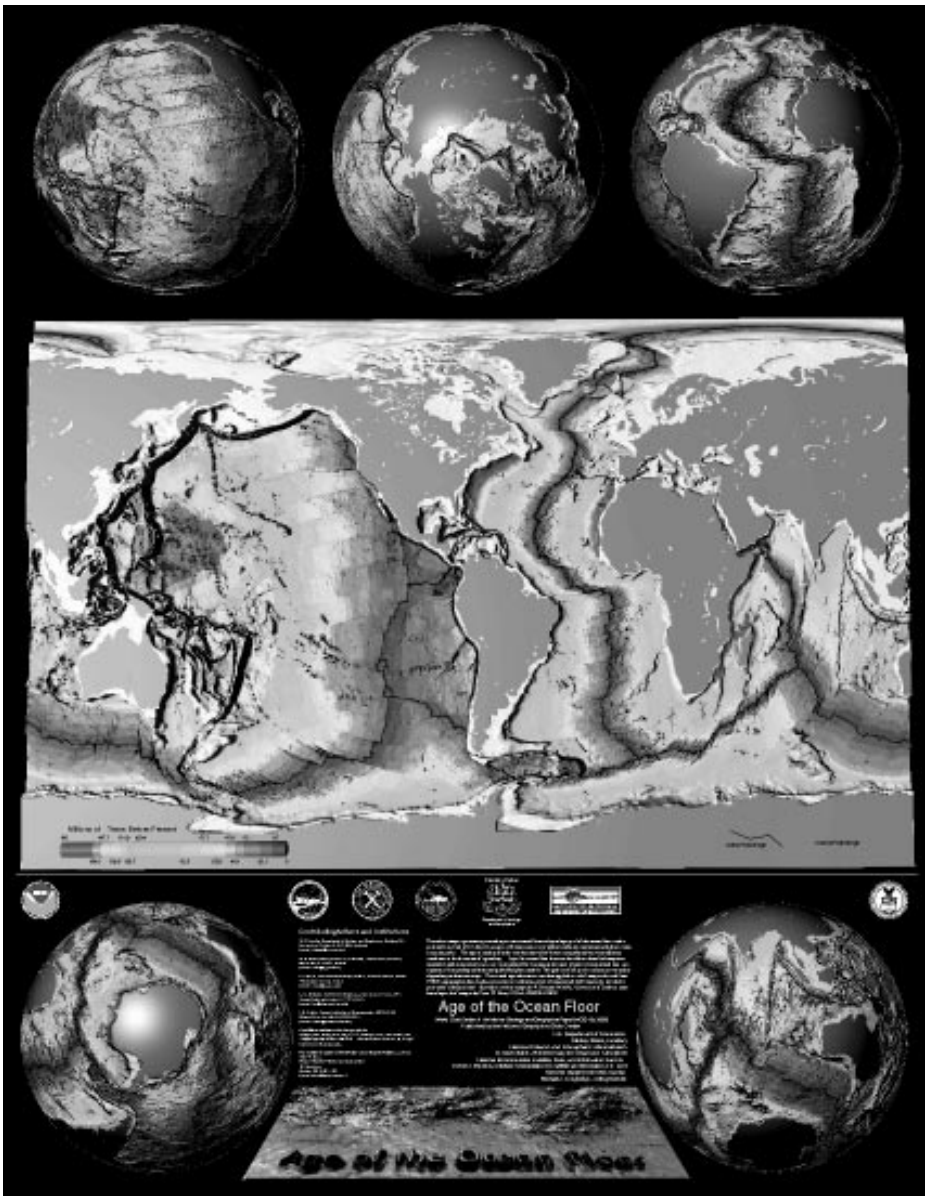
"The poster highlights one of the most amazing discoveries made by geologists in the late 20th century, namely, that the age of the crust beneath the ocean floor is quite young, geologically speaking, being less than about 180 million years old everywhere ," said Peter W. Sloss, of the Marine Geology and Geophysics Division of NOAA's National Geophysical Data Center in Boulder, Colo.

Oceanic crust is slowly "recycled," being formed at the mid-ocean ridges, transported in conveyor-belt fashion across the ocean floor, and finally destroyed along "subduction zones," where slabs of oceanic crust re-enter the earth's mantle and are consumed, Sloss said. Beneath the continents, on the other hand, the earth's crust is typically billions of years old. Continental crust tends to be preserved at the earth's surface because, being less dense than oceanic crust, it resists subduction, Sloss explained.

New crust is being formed continuously at the axes of the mid-ocean ridges, along which the youngest crustal ages occur. A look at the poster reveals that crustal ages increase with increasing distance from the mid-oceanic ridges, as shown by the progression of the color bands. Widths of the color bands are proportional to the rate at which new crust is being formed, transported, and consumed. High rates occur beneath the east Pacific Ocean, whereas much lower rates occur beneath the north Atlantic and western Indian Oceans. The oldest oceanic crust occurs beneath the north Atlantic and western Indian Oceans nearest the continents, and beneath the western Pacific Ocean adjacent to the oceanic trenches in mid-latitudes.

The color ages overlay image was created by R. Dietmar Müller of the Scripps Institution of Oceanography from crustal age and other data contributed by institutions in Australia, Canada, France, and the United States.

The poster can be previewed on the World Wide Web at: *http://www.ngdc.noaa.gov/mgg/announcements/announce_crustage.html.*



According to Peter Sloss of the National Geophysical Data Center, the new NOAA poster highlights one of the most amazing discoveries made by geologists in the late 20th century—that the age of the crust beneath the ocean floor is "quite young, geologically speaking."

Weather Service Works with Power Cos. to Cut Electricity Costs, Prevent Brownouts

A National Weather Service technician based in Kansas City is working with power companies in the north-central United States to save thousands of dollars for the Federal agency while helping the power companies avoid brownouts during peak usage periods.

Larry Pace, an Emergency Power Specialist for the Weather Service's Central Region Headquarters in Kansas City, has obtained contracts with several power companies that promise to save NWS on electricity bills by using emergency generators during periods of peak electricity usage.

"This arrangement will save the Weather Service a lot of money, which is great in these tough economic times," Pace said. "And by removing us from their demand, the power companies will have a better chance of keeping full power to all their other customers. This is a win-win situation for both the Weather Service and the power companies."

The first contract, with Northern States Power Company in Minneapolis, was signed March 21 by Craig Edwards, meteorologist in charge at the Minneapolis Weather Service Office in Chanhassen, Minn. The projected saving from that contract is $8,000 a year. The Chanhassen building houses the weather forecast office, the North Central River Forecast Center, and the National Operational Hydrologic Remote Sensing Center.

Under the contract, Northern States Power will provide at least a one-hour notification to the Minneapolis forecast office that a peak power usage period is expected and the office should go to its backup generator. The Weather Service is required to use generator power for not more than 80 hours a year. The generators must run 52 hours a year for maintenance purposes.

Similar contracts have been signed for additional Weather Service offices and power companies in Michigan, North Dakota and Wisconsin. Weather Forecast Offices in Gaylord, Mich. ($3,000 annual saving); Grand Forks, N.D. ($2,100); and La Crosse, Wis. ($1,000); were recently completed.

Pace said additional contracts in Minnesota, Missouri, and Wyoming are nearing completion and others are being prepared and investigated.

Power companies include Top O' Michigan Electric Company, Boyne City, Mich.; Vernon Electric Cooperative, Westby, Wis.; NODAK Electric Cooperative, Grand Forks, N.D.; Wisconsin Public Service Commission; and Northern States Power in Minneapolis and Grand Forks, N.D. Savings for the Weather Service range from about $1,000 to more than $8,000 a year at the forecast offices.

Technicians at the Minneapolis forecast office have taken another step that will save the agency an additional $2,000 a year on electricity costs.

Computer Systems Analyst Bruce Aslesen and Electronics Technician Mike Mullins have contracted with Northern States Power to install capacitor banks on the office's incoming power line, which will allow the three Weather Service offices to use more than 90 percent of the available power coming into the building. By increasing the power efficiency factor, the Weather Service will receive a reduced billing rate.

—Pat Slattery

Honorary Degree for Dr. Solomon

NOAA senior scientist Dr. Susan Solomon received an honorary doctor of science degree from Williams College earlier this summer.

Solomon, a scientist at the Environmental Research Laboratory's Aeronomy Laboratory in Boulder, Colo., was cited for her "enduring, profound, inspiring commitment to basic science" by Williams president Harry C. Payne.

Solomon formulated a theory of connecting chlorofluorocarbons (CFCs) to the ozone hole over the Antarctic. Her expedition to the polar region confirmed the theory, and a worldwide movement to end the use of CFCs began soon afterwards. She received a Department of Commerce Gold Medal award in 1989 for "impeccable science in the cause of mankind," and became the youngest member of the Academy of Sciences in 1992.

Other honorees at the ceremony included novelist Martha Craven Nussbaum, Stewart Kwoh, founder of the Los Angeles-based Asian Pacific American Legal Center, and former President George Bush.

Exxon Valdez Papers Published

In March 1989, just before the Pacific herring spawned and millions of salmon fry emerged from their spawning beds, as thousands of ducks inhabited the coast of the Kenai Peninsula, as millions of seabirds converged on the breeding colonies, as sea otters maintained their dense fur against an unusually cold winter, and as killer whales, humpback whales, northern sea lions, and harbor seals inhabited the northern Gulf of Alaska, the tanker *Exxon Valdez* ran aground on Bligh Reef spilling 42 million liters of crude oil into Prince William Sound, resulting in the largest tanker oil spill in U.S. waters.

Studies were begun immediately to assess the injury to each affected species in terms of mortality, growth, and reproduction.

In 1993, a 3-day symposium was organized to report results of the oil spill studies. Although hindered by lack of pre-spill baseline data, hundreds of scientists worked to document population counts, counts of carcasses, mortality rates of eggs and larvae, and sublethal effects of oil on subarctic fish and wildlife. The damage assessment studies presented in this proceedings of the February 1993 symposium, from population census work to process-oriented ecological studies, set the groundwork for movement into restoration programs.

This 996-page volume, *Exxon Valdez Oil Spill Symposium Proceedings*, contains 61 papers representing the major studies presented at the symposium and comprises the most comprehensive collection of scientific papers published to date on the oil spill. Contributions by over 150 authors, which were evaluated by more than 100 peer reviewers, make this a significant record of the effort to determine the extent and nature of the damage caused by the oil spill. The papers were organized into 12 subjects: Fate and Toxicity, Subtidal, Subsistence, Treatment Effects, Intertidal, Herring, Salmon, Other Fish, Birds, Mammals, Archaeology and Human Impacts. Author and subject indexes make this massive compendium reader friendly.

Two of the editors are NOAA scientists from Alaska: Dr. Stanley (Jeep) Rice is the Program Manager of Habitat Division at Auke Bay Fisheries Laboratory, Auke Bay, Alaska. Bruce Wright is the Program Manager of the Office of Oil Spill Damage Assessment and Restoration, at Auke Bay, Alaska

The book can be purchased for $35.00 plus $4.00 postage per book shipped inside the U.S.; $6.00 per copy elsewhere. Orders may be placed by phone (412/741-5700), Fax (412/741-0609), or by writing to American Fisheries Society, Publication Fulfillment, P.O. Box 1020, Sewickley, PA 15143.

Rodenhuis to Head New Weather Center

continued from page 3

community.

"Dr. Rodenhuis' leadership is an excellent addition to the Aviation Weather Center team," said NCEP Director Ron McPherson. "With his strength and expertise, the center will continue to increase its effectiveness in providing timely and accurate services to the aviation community in support of both public safety and efficient operations."

Prior to heading the AWC, Rodenhuis directed NCEP's Climate Prediction Center for 11 years.

The AWC provides daily aviation weather products to commercial carriers, the Federal Aviation Administration and users in general aviation. The center also collaborates with national and international aviation organizations such as the Air Transport Association, the Aircraft Owners and Pilots Association and the International Civil Aviation Organization. The AWC was formed in October 1995 by combining the functions formerly performed by three collaborating National Weather Service offices.

Both NCEP and the Aviation Weather Center are on the World Wide Web at *http://www.ncep.noaa.gov/* and *http://www.awc-kc.noaa.gov* respectively.

—Kim Comba

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